

REPORT DOCUMENTATION PAGE**Form Approved**
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

| | | | | | |
|--|-------------------------------|--|---|--|---|
| 1. REPORT DATE (DD-MM-YYYY) 01-04-2011 | | 2. REPORT TYPE Master of Military Studies Research Paper | | 3. DATES COVERED (From - To) September 2010 - April 2011 | |
| 4. TITLE AND SUBTITLE The Marine Air Command and Control System: Critical to Success of the Marine Air Ground Task Force | | | | 5a. CONTRACT NUMBER N/A | |
| | | | | 5b. GRANT NUMBER N/A | |
| | | | | 5c. PROGRAM ELEMENT NUMBER N/A | |
| 6. AUTHOR(S) Krysa, John D., Major USMC | | | | 5d. PROJECT NUMBER N/A | |
| | | | | 5e. TASK NUMBER N/A | |
| | | | | 5f. WORK UNIT NUMBER N/A | |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068 | | | | 8. PERFORMING ORGANIZATION REPORT NUMBER N/A | |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A | | | | 10. SPONSOR/MONITOR'S ACRONYM(S) N/A | |
| | | | | 11. SPONSORING/MONITORING AGENCY REPORT NUMBER N/A | |
| 12. DISTRIBUTION AVAILABILITY STATEMENT Unlimited | | | | | |
| 13. SUPPLEMENTARY NOTES N/A | | | | | |
| 14. ABSTRACT The MAGTF is a vital asset to the United States. It provides the joint force commander a capability that is used to achieve the operational and strategic objectives for our nation. Marine aviation is a critical component of the MAGTF and plays a role in every area of operation, in every mission, and in every level of conflict. Without Marine aviation there is no MAGTF. The integration of the air-ground team provided by the MACCS is what produces the synergy of the MAGTF. | | | | | |
| 15. SUBJECT TERMS Marine Air Command and Control System, MACCS, Marine Air Ground Task Force, MAGTF, Marine Aviation, air-ground team, air-ground integration | | | | | |
| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT UU | 18. NUMBER OF PAGES 28 | 19a. NAME OF RESPONSIBLE PERSON Marine Corps University / Command and Staff College |
| a. REPORT Unclass | b. ABSTRACT Unclass | c. THIS PAGE Unclass | | | 19b. TELEPHONE NUMBER (include area code) (703) 784-3330 (Admin Office) |

United States Marine Corps
Command and Staff College
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5068

MASTER OF MILITARY STUDIES

TITLE:

**The Marine Air Command and Control System:
Critical to Success of the Marine Air Ground Task Force**

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

AUTHOR:

Major John D. Krysa, USMC

AY 10-11

Mentor and Oral Defense Committee Member: Dr. PAUL D. GREGG, Jr.

Approved: [Signature]

Date: 1 April 2011

Oral Defense Committee Member: Dr. Douglas E. Strensen

Approved: [Signature]

Date: 1 April 2011

EXECUTIVE SUMMARY

Title: The Marine Air Command and Control System: Critical to Success of the Marine Air Ground Task Force

Author: Major John D. Krysa, USMC

Thesis: The Marine Air Command and Control System (MACCS) provides the air-ground integration that is critical to the success of the Marine Air Ground Task Force (MAGTF). The MAGTF, the Marine combined arms force is a vital asset to our nation. It provides the joint force commander a capability that is used to achieve the operational and strategic objectives for our nation.

Discussion: The United States Marine Corps has adapted over the years to the needs of the country in times of war and peace. The Marine Corps that we know today has trained and fought as a Marine Air Ground Task Force (MAGTF). In 1962, Marine Corps Order 3120.3 formalized the MAGTF construct with, "A Marine air-ground task force with separate air ground headquarters is normally formed for combat operations and training exercises in which substantial combat forces of both Marine aviation and Marine ground units are included in the task organization of participating Marine forces." The MAGTF is made up of a Command Element, Ground Combat Element (GCE), Aviation Combat Element (ACE), and Logistics Combat Element (LCE). The four core elements describe types of forces needed and not actual military units or commands. The basic structure of the MAGTF never varies, though the number, size, and type of Marine Corps units comprising each of its four elements will always be mission dependent. The flexibility of the organizational structure allows for one or more subordinate MAGTFs to be assigned. The Marine Air Command and Control System (MACCS) provides the air-ground integration that is critical to the success of the Marine Air Ground Task Force.

Conclusion: The MAGTF is a vital asset to the United States. It provides the joint force commander a capability that is used to achieve the operational and strategic objectives for our nation. Marine aviation is a critical component of the MAGTF and plays a role in every area of operation, in every mission, and in every level of conflict. Without Marine aviation there is no MAGTF. The integration of the air-ground team provided by the MACCS is what produces the synergy of the MAGTF.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

QUOTATION FROM, ABSTRACTION FROM, OR REPRODUCTION OF ALL OR ANY PART OF THIS DOCUMENT IS PERMITTED PROVIDED PROPER ACKNOWLEDGMENT IS MADE.

TABLE OF CONTENTS

| | PAGE |
|--|------|
| EXECUTIVE SUMMARY..... | ii |
| DISCLAIMER..... | iii |
| PREFACE..... | v |
| SECTION 1: INTRODUCTION..... | 1 |
| SECTION 2: BACKGROUND..... | 2 |
| SECTION 3: HISTORY..... | 3 |
| SECTION 4: DOCTRINAL REVIEW..... | 6 |
| SECTION 5: CURRENT ROLE OF MARINE AVIATION..... | 8 |
| SECTION 6: MACCS WITH THE THEATER AIR GROUND SYSTEM..... | 11 |
| SECTION 7: CULTURE..... | 13 |
| SECTION 8: NOT A SINGLE INTEGRATED AIR FORCE..... | 16 |
| SECTION 9: CONCLUSION..... | 17 |
| ENDNOTES..... | 20 |
| BIBLIOGRAPHY..... | 22 |

PREFACE

The genesis of this research project came about as a result of my multiple deployments in support of Operation ENDURING FREEDOM and Operation IRAQI FREEDOM. I served as an Air Defense Control Officer deployed with the Tactical Air Operations Center to Afghanistan in 2002 and 2003 and to Iraq in 2007 and 2009. In these deployments I experienced different levels of Marine aviation support for Marine Air Ground Task Force and Joint Task Force deployments. Every deployment exposed me to different integration of Marine Air Command and Control Systems into the Theater Air Ground Systems. The exposure allowed me to experience some great integration as well as some poor integration.

My initial research focused on Marine Air Ground Task Force, in particular Marine Air Command and Control System, integration into a mature theater of operations. At the time, I felt that the Marine Corps often tried to force itself and its way of doing business into areas of operations that were already operating. At times, it looked like the square peg being forced into the round hole but in good Marine Corps fashion we used a sledge hammer to make it fit. As my research took off I discovered that there truly is a reason why the Marine Corps deploys as it does. History has shown us repeatedly that the Marine Corps is great at air-ground integration and that the Air Force and Army have at times mimicked the Marine Corps system. As a result of my research I then focused on why Marine aviation is a critical component of the Marine Air Ground Task Force. I had to delve into what make the Marine Air Ground Task Force construct work so well.

I would like to thank Dr. Paul Gelpi for offering me advice and mentorship that helped to me to mold my ideas into a coherent line of reasoning.

Marine aviation units are an integral element of an air-ground combat system. They are not merely joined at the top when the time comes to fight. They are fully integrated from top to bottom, and they train that way full-time.

- Gen Carl E. Mundy

INTRODUCTION

Since 1962, the U.S. Marine Corps has trained and fought as the Marine Air Ground Task Force (MAGTF). That year, the Commandant, General David M. Shoup, signed Marine Corps Order 3120.3 that stated, "A Marine air-ground task force with separate air ground headquarters is normally formed for combat operations and training exercises in which substantial combat forces of both Marine aviation and Marine ground units are included in the task organization of participating Marine forces."¹ A Command Element, Ground Combat Element (GCE), Aviation Combat Element (ACE), and Logistics Combat Element (LCE) comprise the MAGTF. The four core elements describe types of forces needed rather than actual military units or commands. The basic structure of the MAGTF never varies but the number, size, and type of Marine Corps units of its four elements varies by mission. The flexible, scalable organizational structure enables the assignment of one or more subordinate MAGTFs to the task force, which allows the Marine Corps to accomplish its missions with a relatively light force.

The Marine Air Command and Control System (MACCS) provides the air-ground integration that is critical to the success of the Marine Air Ground Task Force (MAGTF). The MAGTF, the Marine combined arms force is a vital asset to our nation. It provides the joint

force commander a capability that is used to achieve the operational and strategic objectives for our nation.

BACKGROUND

Marine forces are general purpose forces that conduct expeditionary operations deploying with limited mobility assets and organic fire support. It is these limitations that make the fires, fire support, and mobility provided by Marine aviation so critical. Marine aviation is a flexible instrument of the MAGTF's combat power that provides the MAGTF with a complete spectrum of operational capabilities.² Although rotary wing, tilt rotor, and fixed-wing aircraft constitute its public face, Marine aviation includes the aviation command and control capabilities and aviation support capabilities, as well. As a result, Marine aviation provides the MAGTF with immense capabilities and flexibility.

Marine aviation supports the MAGTF through six functions: offensive air support, antiair warfare, assault support, air reconnaissance, electronic warfare, and control of aircraft and missiles.³ These six functions of Marine aviation cover a lot of tasks. Offensive air support are air operations conducted against enemy facilities, installations, and personnel in order to assist the MAGTF in attaining its objectives. Offensive air support includes close air support and deep air support, which includes air interdiction operations and armed reconnaissance missions.⁴ Antiair warfare is the actions to reduce or destroy the enemy air and missile threat to an acceptable level. Antiair warfare includes offensive antiair warfare and air defense, which includes active and passive air defense.⁵ Assault support uses aircraft to provide logistical support and tactical mobility. Assault support includes combat assault transport, air delivery, aerial refueling, air evacuation, tactical recovery of aircraft and personnel, air logistical support,

and battlefield illumination.⁶ Air reconnaissance acquires intelligence information through the use of visual observation and/or sensors in aircraft. Air reconnaissance includes visual reconnaissance, multisensory imagery reconnaissance, and electronic reconnaissance.⁷

Electronic warfare is the use of electromagnetic and directed energy to attack the enemy or to control the electromagnetic spectrum. Electronic warfare includes electronic attack, electronic protection, and electronic warfare support.⁸ The control of aircraft and missiles integrates the other five functions of Marine aviation and enhances the unity of effort and disseminates a common situational picture. The control of aircraft and missiles includes air direction and air control, which includes airspace management and airspace control. The integration provides the commander with the ability to exercise command and control over all Marine aviation assets.⁹

HISTORY

Although the Marine Corps we know today fights as a MAGTF, a cohesive Marine air-ground team, this was not always the case. During World War II there were very few occasions in which Marine aviation supported Marine ground combat units. Marine aviation did work on perfecting close air support but it was done in support of Army units in the Philippines. Most close air support provided to Marine ground units in World War II was from the Army Air Corps. These different wartime evolutions caused a schism to develop between the air and ground communities in the Marine Corps. As a result of the schism between Marine aviators and their fellow Marines, some aviators advocated transferring Marine aviation to the newly independent Air Force. The doctrine being written during World War II did not even address close air support.¹⁰ The Marine aviation curriculum taught at Marine Corps Schools up through

1942 referred only to "Bombing Aviation" and made no reference to air-ground integration.¹¹

The Commandant, General A. A. Vandegrift, understood the schism between the air and ground communities and knew that it represented a danger to the future of the Corps. During World War II the Commandant started the Marine Air-Infantry School to educate Marine Officers about the Marine Corps as a whole. The curriculum for the Junior and Senior Officer Courses were updated to ensure that all officers had a solid understanding of air-ground operations.¹²

The Marine aviation curriculum at Marine Corps Schools was updated in 1943 and was renamed "Marine Corps Aviation General". An entire section was devoted to Aviation in Support of Ground Forces and referred to combined operations of air and ground forces and air support.¹³

The curriculum was further updated in 1944 with a section on "Combined Air-Ground Attack". This section referred to close air support and the importance and need for Air Liaison Parties.¹⁴ While the Marine Corps pushed close air support as a priority over other air missions the Army and newly formed independent Air Force could not agree on a joint doctrine for air-ground operations.¹⁵

The air-ground doctrine, education, and training that evolved after World War II overcame the division between the Marine air and ground communities. The Marine Corps air-ground team that deployed to Korea was successful during the fight for the Pusan perimeter. With Marine air under Marine aviation command and control supporting Marine ground combat units, the close air support response time was 7.5 minutes.¹⁶ This response time remained until the summer of 1951 with Marine aviation in direct support of Tenth Corps using the Marine air-ground system. The Marine Aircraft Wing maintained aircraft on alert to respond to requests routed from the Tactical Air Control Party (TACP) through the Marine Air

Support Section of the Marine Tactical Air Control Center (MTACC) with other agencies monitoring the tactical air request net, silence was consent from the chain of command.¹⁷ In the summer of 1951, the control system was changed to the Army-Air Force air-ground system due to a reorganization of command relationships. Now air support requests went through an elaborate system. A request from the TACP went to the MTACC. The Marine senior controller requested authorization for a phone patch to Eight Army. The Marine senior controller then contacted an Eight Army watch officer in the Joint Operations Center (JOC) via the chain of command. The controller passed the pertinent target and controller information to the watch officer. The Army watch officer then discussed the request with an Air Force watch officer. If the request was approved at this point, it was forwarded to the JOC TACC. The JOC TACC then diverted the next available armed reconnaissance mission that reported on station to service the immediate request. Close air support times now averaged an hour to an hour and a half.¹⁸ This drastic change in response times was not a matter of aircraft availability, it was the result of a difference in air-ground integration and the aviation command and control systems in place.

Throughout the Vietnam War, the control of aviation changed with Marine aviation initially under Marine control and then moved to all aviation being under the control of the 7th Air Force. Senior Marines expressed concerns that close air support response times would increase but that was not the case as the Army and Air Force overhauled their aviation command and control system so that it was as responsive as the original Marine structure.¹⁹ In fact many of the control agencies in place and procedures used started to look like those of the MACCS. The Air Support Operations Centers became DASCs that were subordinate to the TACC

that responded to immediate requests for air support with dedicated pre-assigned aircraft. The approval process followed the MACCS model with requests from the TACPs going to the DASC via an Air Force request net that was monitored by higher headquarters, silence was consent from the chain of command.²⁰

During Operation DESERT STORM, we saw the use of the Joint Force Air Component Commander (JFACC). Even with this single air asset manager concept, each service was organized into control sectors with the respective services being responsible for the control within their own battlespace.²¹ During Operation IRAQI FREEDOM Marine aviation, in particular the MACCS, went through several changes. During the initial invasion the Marines deployed with the full MACCS to provide aviation command and control over the entire I Marine Expeditionary Force (MEF) area of operations. After the withdrawal and eventual return of Marine forces to Iraq in 2004 the MACCS did not deploy all of its agencies, limiting their capabilities. This shortcoming resulted in a modified and much smaller piece of Marine controlled airspace over the Marine area of operations.²² It was not until 2007 that this lack of capability was rectified when the Tactical Air Operations Center was deployed to Al Anbar Province and the full MACCS was in place. The Marine Corps did not make the same mistake when deploying to Afghanistan for the surge in support of Operation ENDURING FREEDOM. The Marine Corps deployed the full capabilities of the MAGTF to include the full MACCS to support operations in the Marine area of operations.

DOCTRINAL REVIEW

There are many doctrinal publications that cover aviation operations. Joint Publication 1, *Doctrine for the Armed Forces of the United States*, lays out the organizational structure and

command relationships for joint forces. The joint force recognized the critical role of Marine aviation by laying out the following policy for command and control of Marine tactical air:

The MAGTF commander will retain OPCON [operational control] of organic air assets. The primary mission of the MAGTF aviation combat element is the support of the MAGTF ground combat element. During joint operations, the MAGTF air assets normally will be in support of the MAGTF mission. The MAGTF commander will make sorties available to the JFC [joint forces commander], for tasking through the joint force air component commander (JFACC), for air defense, long-range interdiction, and long-range reconnaissance. Sorties in excess of MAGTF direct support requirements will be provided to the JFC for tasking through the JFACC for the support of other components of the joint force as a whole.²³

The six functions of Marine aviation are used to support combined arms operations and the six warfighting functions: command and control, maneuver, fires, intelligence, logistics, and force protection.²⁴ The MACCS enables Marine aviation to support all of these functions. The MACCS consists of several air command and control agencies whose mission is to provide the MAGTF ACE Commander with the capability to supervise, monitor, and influence the application of Marine aviation's six functions.²⁵ The MACCS contributes to MAGTF operations by; providing the air command and control systems required to supervise and control the execution of the six functions of Marine aviation, coordinating air operations with joint/multinational/Service and civil air command and control systems, and by advising the MAGTF commander and JFC on the application and employment of Marine aviation.²⁶

The subordinate agencies of the MACCS include the: Tactical Air Command Center (TACC), Tactical Air Operations Center (TAOC), Direct Air Support Center (DASC), Marine Air

Traffic Control Detachments (MATCD), TACPs, Airborne Terminal Control Agencies, Low Altitude Air Defense (LAAD) Battalion, and Marine Wing Communications Squadron. The TACC is the senior agency of the MACCS and provides the ACE Commander with the facilities to command, supervise, and direct MAGTF air operations. The TAOC is responsible for airspace management and control and provides real time surveillance and positive control with organic RADAR systems. The DASC is responsible for the direction of air operations that directly support ground units. TACPs provide ground commanders with direct liaison to the MACCS to meet their direct air support requirements. Airborne Terminal Control Agencies serve as extension of the MACCS in an airborne capacity over the battlespace and include the Tactical Air Coordinator (Airborne), Forward Air Controller (Airborne), and Assault Support Coordinator (Airborne). LAAD provides close-in, low altitude, surface-to-air weapons fires in defense of forward combat elements, vital areas, and installations. The Marine Wing Communications Squadron provides the communications backbone that ties the ACE and MACCS together.²⁷

The Marine Corps is trained and equipped to provide all the equipment, personnel, and capabilities to fight as a cohesive force using the single battle concept. MAGTFs are tasked, organized for the assigned mission and bring all capabilities required to accomplish the mission. It is critical to remember that Marine aviation is not just aircraft but also includes the ability to command and control them.

CURRENT ROLE OF MARINE AVIATION

In recent years Marine aviation has been heavily deployed in support of MAGTFs around the globe. During the invasion of Iraq in 2003 the Marine Corps provided a Marine Expeditionary Force (MEF) with associated Marine Wing to support the Joint Force Commander. The ACE for

the MEF included all facets of Marine aviation; aircraft, a MACCS, and aviation logistics support. The MEF was provided its own battlespace to include the airspace above it. The MEF did provide Marine aviation sorties per doctrine to support the Combined Force Air Component Commander (CFACC).²⁸ There was a distinct difference in the way that the Air Force and Marine Corps provided command and control for their respective airspace. The unity of command that existed in the MEF area of operations provided for a flexible and efficient use of aviation support. Strike aircraft in the MEF area of operations were directed immediately to targets while strike aircraft in the Air Force, or V Corps, area of operations had to wait for clearance from higher echelon control agencies to employ ordnance on targets. In many cases coalition strike aircraft would "bingo", notify the control agency they had to go home for fuel, depart the V Corps area of operations and cross into the MEF area of operations. They were then given targets to strike almost immediately.²⁹

After the withdrawal of Marine forces and the subsequent deployment back to Iraq in 2004 to take over Al Anbar province we saw the Marine Corps take on a highly decentralized fight within its own battlespace.³⁰ The MACCS that deployed to Al Anbar did not deploy with all of its agencies and thus lacked some capabilities. The Marines relied on some command and control functions from the Air Force, which caused serious issues with; clearance of surface to surface fires, unmanned aerial system integration, aerial refueling operations, and flight following for fixed wing aircraft.³¹ During the first battle for Fallujah a situation similar to the invasion resulted when pilots took matters into their own hands to get ordnance on target, to support the ground combat element. Strike aircraft were required to remain under Air Force control to then be passed to Marine control and then to the forward air controller. There were

delays in the approval to switch and pilots started to skip checking in with the Air Force and would go immediately to the Marine control provided by the DASC for tasking.³² The Marine Corps identified the aviation command and control issues and decided to rectify the situation. The MACCS was made whole with the deployment of the TAOC in 2007. There were marked improvements in air-ground coordination with the full MACCS in operation.

With the irregular warfare or counter-insurgency fight that took place in Iraq the MEF in Al Anbar fought a very decentralized fight. Air operations were integrated with ground operations with inputs at the lowest level. This integrated planning, as opposed to an independent airpower strategy allowed the MEF to best apply airpower in support of ground operations to achieve their objectives. The decentralized planning and control that was provided by the MACCS enabled the MEF to take fast, flexible decisive action in a very complex and fluid environment. A key part of this integration was and is the expertise of the air officers within the ground combat element. The entire MAGTF, Marine aviation, and MACCS structure is designed to exploit the success of small units while exploiting economy of force and scale.³³

During the recent surge in Afghanistan a MAGTF was deployed to Helmund province. Initially a Marine Expeditionary Brigade deployed with an associated ACE and MACCS. This was built up to a MEF with a much larger ACE and more robust MACCS.³⁴ The Marine Corps did not make the same mistake as had been made in Iraq and the TAOC was deployed during the build-up. The TAOC not only provides positive control of the Marine area of operations but supports the CFACC by providing positive control for all of Western Afghanistan as a part of the Theater Air Ground System.

In addition to MAGTFs being deployed to support combat operations in Iraq and Afghanistan, they have been deployed in support of humanitarian operations in Haiti, deterrence in Southeast Asia, and security cooperation missions.³⁵ Currently there are three Marine Expeditionary Units, with embarked aviation, deployed in support of operations worldwide. Each Marine Expeditionary Unit has a Marine Air Control Group Detachment that includes the requisite components of a MACCS to provide the appropriate aviation command and control from the start. This MACCS capability can then be built up with the deployment of follow on forces and capabilities.

MACCS WITHIN THE THEATER AIR GROUND SYSTEM

The MACCS does not function independently when joint forces are involved. The MACCS must integrate into the joint structure. Within a Joint area of operations a theater air-ground system (TAGS) will be established by the Joint Force Air Component Commander (JFACC). TAGS is the joint aviation command and control system. The MACCS is the MAGTF's integrator into the TAGS.³⁶

The Marine Corps' philosophy on command is one of centralized command and decentralized control, this philosophy is the same within Marine aviation and the MACCS. The Air Force's philosophy on command is one of centralized command and control and decentralized execution. The difference between these two philosophies and doctrines is immense.³⁷ The Marine Corps expects and demands that tactical decisions will be made in the cockpit and at the subordinate control agencies.³⁸ The Air Force maintains the decision making and authorities at the highest levels of the chain of command, usually at the Air Operations Center.³⁹

Marine Corps doctrine dictates that some level of control of the entire airspace over the assigned battlespace must be established. This includes everything from the surface of the earth on up. The division of airspace is different in Army battlespace. The Air Force controls all aircraft, usually fixed wing, from the coordinating altitude (3,000' to 4,500' above ground level) on up. The remaining airspace from the surface to the coordinating altitude is controlled, uncontrolled would be a better description, by the Army. This division by the Army and Air Force from uncontrolled to controlled airspace creates a seam in the airspace that affects the entire battlespace.⁴⁰

The MACCS is an organic part of Marine aviation and the MAGTF that provides seamless integration of Marine air and ground operations.⁴¹ The MACCS, Marine aviation, and the MAGTF work most effectively when operating within their own area of operations with its own assigned airspace. This MAGTF area of operations allows great flexibility and efficiency and in the end results in swift action by Marine aviation.⁴²

The Air Force Tactical Air Control System (TACS) is designed to provide command and control for an independent airpower strategy with limited air-ground integration. There is a system to conduct limited coordination with ground operations. This system is not adequately manned or organized to integrate air and ground operations on the scale required in Iraq and Afghanistan.⁴³

The focus on air-ground integration and the aviation command and control systems that brings synergy to the air-ground team varies greatly between services. The Marine Corps has formal schools to train all of their aviation command and control enlisted and officer personnel. The Air Force does not have a formal course for their Air Support Operations Center personnel.

The Marine Corps sends MAGTFs to several training venues to practice the integration of all facets of the MAGTF. Marine Expeditionary Units do work ups prior to deployment with the entire MAGTF in play. The biggest exercise that the Marine Corps participates in that exercises all facets of the MAGTF concurrently is the Weapons and Tactics Instructor Course that take place each spring and fall in Yuma, Arizona. The Army and Air Force do not consistently train the way they fight, they do not exercise the complete TACS at training venues like Red or Blue Flag.⁴⁴

CULTURE

The Marine Corps is unique among the armies of the world because of our total integration of combat power in the air-ground task force and an unparalleled capability to orchestrate the integrated effort. If there were ever a force multiplier on the modern battlefield it is the Marine Corps' organization for battle.

- MajGen Bernard E. Trainor

While each of the armed services of the United States trains to fight and win our nations wars as independent entities or as a joint force there are inherent differences that affect the overall air-ground integration. These differences in culture result in different levels of air-ground planning and operations. The Air Force and Army Theater Air Control System (TACS) operates with differences in service culture, command relationships, training, and resource constraints that attribute to a lower level of air-ground integration and synchronization as compared to the MAGTF and the MACCS.⁴⁵

The Air Force culture is largely based on the independent application of airpower within a theater of operations to achieve operational and strategic effects. In major combat

operations the CFACC may be the supported commander for certain missions, especially prior to the kick off of a ground campaign, and the supporting commander for other missions. In the case of operations in Iraq following the invasion, the CFACC was designated the supporting commander to the Multi National Forces Iraq Commander. The CFACC in this case undertook several initiatives to improve air-ground integration, particularly the effects of fires. Yet there were some initiatives to support irregular warfare that had unintended consequences. One in particular was the renaming of close air support to "close precision strike". This renaming fed into the idea that airpower can win wars independently. There were many Airmen, at all levels, within the Combined Air Operations Center that were unwilling to accept the supporting role that the air component was expected to execute. There were attempts by some air strategists to remove the terms "supporting", "supported", and "enable" from their air plans and strategy documents. This led to confusion and frustration within the Army and Air Force when conducting air-ground operations in Iraq.⁴⁶

Marine culture is centered around and focused on the MAGTF, the single battle concept, and the role of aviation supporting the ground combat element. The single battle concept seeks to integrate the entire battlespace without seams between the individual domains. This concept is the fundamental principle under which Marine forces task organize. There is a synergy in balancing air and ground maneuver in terms of combined arms. This is true across all spectrums of warfare, not just major theater war or when fighting a counter-insurgency.⁴⁷

The difference in culture and philosophy is best represented by the different approaches in airspace management used in Iraq and Afghanistan. Within the Air Force airspace over the Army battlespace in Iraq there is tendency to favor deconfliction of airspace vice integration.

The Air Force TACS in Iraq used the coordinating altitude, temporary Restricted Operations Zones (ROZ), and permanent restricted operations zones to deconflict airspace. During surface-to-surface fire missions the TACS would activate a ROZ to cover the entire area that an artillery or mortar round would pass through. The MACCS favors the integration of operations with air and ground fires working together to accomplish the mission. The MACCS gives more information to aircraft to allow them to adjust their orbit to be safe from ground fires while still providing support to the ground unit.⁴⁸

The cultural differences carry on to the assignment of aviators to ground units. In Iraq, Marine Air Officers deployed with ground combat elements at Regiment and below outnumbered Air Force Air Liaison Officers by a ratio of twelve-to-one. There are also differences in the way that aviators are assigned to these Air Officer or Air Liaison Officer billets. Marine aviation requires aviators to serve a tour with a ground unit as an Air Officer or Forward Air Controller in order to be eligible to attend weapons school. These tours are career enhancing. In the Air Force Air Liaison Officer billets are not desired and are not career enhancing. The Air Force assigns young enlisted Airmen to Army Battalions to execute the use of airpower in support of ground operations. While these Airmen do a great job controlling aircraft they are unable to contribute significantly to air-ground planning due to a lack of platform and aviation expertise.⁴⁹

A significant advantage that Marines have in fighting as an air-ground team is the habitual relationship between aviators, controllers, and their ground counterparts. All Marine Officers, including pilots, attend The Basic School. In addition to training all Marine Officers in

the basic skills necessary to be an Infantry Platoon Commander, there is a bond that develops between Marine Officers that follows them to the Fleet and throughout their careers.⁵⁰

NOT A SINGLE INTEGRATED AIR FORCE

The essential difference between Marine aviation and other aviation forces is that Marine aviation is designed to operate as an integral part of a combined-arms organization.

- MCWP 3-2

So why does the Marine Corps maintain “another Air Force”? It would seem that Marine tactical aviation assets to include: F/A-18A-D Hornets, AV-8B Harriers, KC-130 Hercules, EA-6B Prowlers, and the to be fielded F-35B Lightning IIs are a second or redundant Air Force.⁵¹ If one takes a look at the roles and missions of Marine aviation they could seek to gain efficiencies in our force structure through consolidation. This argument can and has been further expanded to label the Marine Corps as a second Army.⁵² Just looking at Marine aircraft, the redundancy of roles and missions could be replaced by Navy or Air Force assets. The same is true of aviation command and control assets. If aircraft supporting Marine ground units are coming strictly from other services then the MACCS could be disestablished with the aviation command and control responsibility going to the Air Force.

The Marine Corps should address these arguments, especially in this time of shrinking budgets. The institutional argument should not be based solely on inspirational laurels of the past that have helped the Marine Corps to continue to exist. The Marine Corps needs to focus on the importance that Marine aviation systems play as components of the larger MAGTF. The MAGTF provides the Joint Force Commander with lethal and flexible capabilities through its combined arms organization, of which Marine aviation is just one element.⁵³ The Marine Corps'

combined arms capabilities and competencies have evolved to such an advanced level, these capabilities will continue to serve the joint force and United States in the future.⁵⁴ “The Corps- as the nation’s sole, forward-deployed, expeditionary force-in-readiness-ultimately contributes to America’s security.”⁵⁵

The responsiveness and readiness inherent in the Marine Corps’ expeditionary posture and the seamless integration of combat capabilities across operating environments and domains are what make the MAGTF so effective. MAGTF forces are light and scalable, naval in character, deployable by ship, and capable of operating in expeditionary, forward-deployed environments as an integrated air-ground team.⁵⁶ The MAGTF can provide deterrence through a forward deployed presence, provide rapid response to humanitarian crises, conduct traditional power projection, counter anti-access attempts by our adversaries, conduct forcible entry operations, or conduct sustained large-scale combat operations.⁵⁷ All of this is not possible without the integrated air-ground team that is provided by the MAGTF, which includes organic tactical aviation and the associated air command and control system.

CONCLUSION

Marine aviation has one mission...that is to support the ground elements of the FMF.

- Maj Gen Keith B. McCutcheon

Due to the expeditionary nature of the Corps, Marines rely heavily on Marine aviation to provide fires support in both close and deep operations. To be successful, the MAGTF must retain control of its aviation assets.⁵⁸ The MAGTF does not rely on one type of fire support. The MAGTF integrates all available fires; artillery, mortars, offensive air support, and naval surface fire support.⁵⁹

The MAGTF, our Marine combined arms force is a vital asset to our nation. It provides the joint force commander a capability that is used to achieve the operational and strategic objectives for our nation. Marine aviation is a critical component of the MAGTF and plays a role in every area of operation, in every mission, and in every level of conflict. Marine aviation not only provides tactical fires, it also provides the MAGTF with long-range fires, electronic fires, mobility, intelligence collection, and force protection.⁶⁰

Except for rare instances there is nothing unique about Marine aviation equipment, be it aircraft or command and control systems. They do not possess any unique capabilities that make it better than Navy, Army, or Air Force systems. It is the synergy of an effective and efficient air-ground team that are unique. It is the MAGTF construct, training, and doctrine that make it so effective. It is the Marine ethos, culture, and warrior mentality.

Marine aviation and all that comes with it: the aircraft, the command and control system, and the aviation logistics system should remain a part of the Marine Corps and continue to provide us the A in MAGTF. While Marine aviation has proven itself time and time again, in particular the effectiveness and efficiency of our aviation command and control system, there are still lessons to be learned from the Army and Air Force. There are also ways to improve the way that MAGTFs integrate into a joint or combined area of operations. While a MAGTF is a self contained entity it is not necessary to force a square peg into a round hole if the conditions are not right. In the case of the Vietnam War where three Army and two Marine Divisions were interspersed in the I Corps area of operations it was difficult to give the Marine Corps its own area of operations to include the ground and associated airspace above without introducing friction.⁶¹

The MAGTF is a vital asset to the United States. It provides the joint force commander a capability that is used to achieve the operational and strategic objectives for our nation.

Marine aviation is a critical component of the MAGTF and plays a role in every area of operation, in every mission, and in every level of conflict. Without Marine aviation there is no MAGTF. The integration of the air-ground team provided by the MACCS is what produces the synergy of the MAGTF.

Marine aviation, particularly the MACCS, should seek ways to improve its efficiency and effectiveness. Additionally the Army and Air Force should work to improve their TACS capabilities, efficiencies, and effectiveness. The Marine Corps did not create its current MACCS overnight. It took trial and error throughout wartime and in peace. One can only hope that the Army and Air Force do not ignore the many lessons they have learned in current combat operations and work to improve the TACS for future deployments and wars. The MACCS is the model for air-ground integration.

ENDNOTES

- ¹ Edwin H. Simmons, "'Amphibious' Becomes 'Expeditionary'." *Fortitudine* Volume 18, no. 1 (Spring-Summer 1988): 6.
- ² Headquarters U.S. Marine Corps, *Aviation Operations*, MCWP 3-2 (Washington DC: U.S. Marine Corps, May 9, 2000): 1-1.
- ³ Headquarters U.S. Marine Corps, *Aviation Operations*, 1-2.
- ⁴ Headquarters U.S. Marine Corps, *Aviation Operations*, 2-1 – 2-2.
- ⁵ Headquarters U.S. Marine Corps, *Aviation Operations*, 2-2 – 2-3.
- ⁶ Headquarters U.S. Marine Corps, *Aviation Operations*, 2-3 – 2-4.
- ⁷ Headquarters U.S. Marine Corps, *Aviation Operations*, 2-4.
- ⁸ Headquarters U.S. Marine Corps, *Aviation Operations*, 2-4 – 2-5.
- ⁹ Headquarters U.S. Marine Corps, *Aviation Operations*, 2-5 – 2-6.
- ¹⁰ T. X. Hammes, "Forgotten Warriors," *Marine Corps Gazette* 94, no. 11 (November 2010): 50-51.
- ¹¹ Marine Corps Schools, *Bombing Aviation*, (Marine Barracks, Quantico, VA 1940-1941): 1-1, 3-1.
- ¹² T. X. Hammes, "Forgotten Warriors," *Marine Corps Gazette* 94, no. 11 (November 2010): 50-51.
- ¹³ Marine Corps Schools, *Aviation in Support of Ground Forces*, (Marine Barracks, Quantico, VA 1943): 95, 97-98.
- ¹⁴ Marine Corps Schools, *Notes on U.S. Marine Corps Aviation*, (Marine Barracks, Quantico, VA 1944): 4-44.
- ¹⁵ Robert Frank Futrell, *Ideas, Concepts, and Doctrine: Basic Thinking in the United States Air Force 1907-1960*, vol. 1 (Maxwell AFB, AL: Air University Press, 1989): 366.
- ¹⁶ Hammes, 51.
- ¹⁷ Lynn A. Stover, "Marine Close Air Support in Korea 1950-1953," (Master's Thesis, Air University, 2001): 71.
- ¹⁸ Stover, 72.
- ¹⁹ Futrell, 299.
- ²⁰ Futrell, 300.
- ²¹ Stover, 110.
- ²² Craig Doty, Scott Gondek, Darry Grossnickle, "MACCS as a System," *Marine Corps Gazette* 94, no. 5 (May 2010): 38.
- ²³ Joint Chiefs of Staff, *Doctrine for the Armed Forces of the United States*, Joint Publication 1 (Washington DC: Joint Chiefs of Staff, March 20, 2009): V-4.
- ²⁴ Headquarters U.S. Marine Corps, *Aviation Operations*, 1-2, 3-1 – 3-2.
- ²⁵ Headquarters U.S. Marine Corps, *Marine Air Command and Control System*, MCWP 3-25.3 (Washington DC: Headquarters U.S. Marine Corps, December 2, 1997): 1-1.
- ²⁶ Headquarters U.S. Marine Corps, *Marine Air Command and Control System*, 1-1.
- ²⁷ Headquarters U.S. Marine Corps, *Marine Air Command and Control System*, 2-1, 2-2, 2-7, 2-10, 2-11, 2-16, 2-20, 2-23.
- ²⁸ MG Rew, BGen Walsh, Col Day, Col Evans, LtCol Anthony, Maj Wilbourne, Air Force / Marine Tiger Team, *Trip Report* (January 2008): 4.
- ²⁹ Rebecca Grant, "Marine Air in the Mainstream," *Air Force Magazine* (June 2004): 64.
- ³⁰ Rew, 4.
- ³¹ Doty, 37.
- ³² Fred H. Allison, "Close Air Support," *Marine Corps Gazette* 92, no. 10 (Oct 2008): 72.
- ³³ Rew, 5.
- ³⁴ George J. Trautman, "Marine Aviation 2010," *Marine Corps Gazette* 94, no. 5 (May 2010): 18.
- ³⁵ Trautman, 18.
- ³⁶ Doty, 34.
- ³⁷ Doty, 35.
- ³⁸ Headquarters U.S. Marine Corps, *Marine Air Command and Control System*, 1-3.
- ³⁹ Doty, 35.
- ⁴⁰ Rew, 4.
- ⁴¹ Doty, 35.

⁴² Doty, 37-38.

⁴³ Rew, 6.

⁴⁴ Howard D. Belote, "Counterinsurgency Air Power," *Air and Space Power Journal* 20, no. 3 (Fall 2006): 61.

⁴⁵ Rew, 4.

⁴⁶ Rew, 4.

⁴⁷ Rew, 5.

⁴⁸ Rew, 7.

⁴⁹ Rew, 10.

⁵⁰ Rew, 11.

⁵¹ Robert D. Loynd, "Don't Cherry Pick the MAGTF," *United States Naval Institute, Proceedings* 134, no. 7 (July 2008): 50.

⁵² Loynd, 51.

⁵³ Loynd, 50.

⁵⁴ Loynd, 51.

⁵⁵ Loynd, 52.

⁵⁶ Loynd, 52.

⁵⁷ Loynd, 53.

⁵⁸ Headquarters U.S. Marine Corps, *Aviation Operations*, 3-1.

⁵⁹ Allison, 71.

⁶⁰ Headquarters U.S. Marine Corps, *Aviation Operations*, 3-1.

⁶¹ Keith B. McCutcheon, "Marine Aviation in Vietnam 1962-1970," *United States Naval Institute, Proceedings, Naval Review* (1971): 137.

BIBLIOGRAPHY

- Allison, Maj Fred H. "Close Air Support." *Marine Corps Gazette* 92, no. 10 (Oct 2008): 70 (6 pages).
- Belote, Col Howard D. "Counterinsurgency Air Power." *Air and Space Power Journal* 20, no. 3 (Fall 2006): 55 (11 pages).
- Doty, LtCol Craig, LtCol Scott Gondek, and Maj Darry Grossnickle. "MACCS as a System." *Marine Corps Gazette* 94, no. 5 (May 2010): 32-39.
- Futrell, Robert Frank. *Ideas, Concepts, and Doctrine: Basic Thinking in the United States Air Force 1907-1960*, vol. 1. Maxwell AFB, AL: Air University Press, 1989.
- Futrell, Robert Frank. *Ideas, Concepts, and Doctrine: Basic Thinking in the United States Air Force 1961-1984*, vol. 2. Maxwell AFB, AL: Air University Press, 1989.
- Grant, Rebecca. Marine Air in the Mainstream. *Air Force Magazine* (June 2004): 60-64.
- Hammes, T. X. "Forgotten Warriors." *Marine Corps Gazette* 94, no. 11 (November 2010): 44-51.
- Headquarters U.S. Marine Corps. *Aviation Operations*. MCWP 3-2. Washington DC: Headquarters U.S. Marine Corps, May 9, 2000.
- Headquarters U.S. Marine Corps. *Marine Air Command and Control System*. MCWP 3-25.3. Washington DC: Headquarters U.S. Marine Corps, December 2, 1997.
- Joint Chiefs of Staff. *Doctrine for the Armed Forces of the United States*. Joint Publication 1. Washington DC: Joint Chiefs of Staff, March 20, 2009.
- Loynd, Col Robert D. "Don't Cherry Pick the MAGTF." *United States Naval Institute Proceedings* 134, no. 7 (July 2008): 50 (5 pages).
- Marine Corps Schools. *Aviation in Support of Ground Forces*. Marine Barracks, Quantico, VA, 1943.
- Marine Corps Schools. *Bombing Aviation*. Marine Barracks, Quantico, VA, 1940-1941.
- Marine Corps Schools. *Notes on U.S. Marine Corps Aviation*. Marine Barracks, Quantico, VA, 1944.

McCutcheon, Keith B. "Marine Aviation in Vietnam 1962-1970." *United States Naval Institute, Proceedings, Naval Review* (1971): 122-155.

Rew, MG, BGen Walsh, Col Day, Col Evans, LtCol Anthony, Maj Wilbourne. Air Force / Marine Tiger Team, *Trip Report*, January 2008.

Simmons, BGen Edwin H. "'Amphibious' Becomes 'Expeditionary'." *Fortitudine* Volume 18, no. 1 (Spring-Summer 1988): 3-7.

Stover, Lynn A. "Marine Close Air Support in Korea 1950-1953." Master's Thesis, Air University, 2001.

Trautman, LtGen George J. "Marine Aviation 2010." *Marine Corps Gazette* 94, no. 5 (May 2010): 18-21.